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TERROR FROM THE SKIES:
EXPLOITING THE PSYCHOLOGICAL IMPACT OF THE HEAVY BOMBER

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect our own personal views and are not necessarily endorsed by the Naval War College, the Department of the Navy, or the Department of the Air Force.

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## Abstract of
## TERROR FROM THE SKIES:
## EXPLOITING THE PSYCHOLOGICAL IMPACT OF THE HEAVY BOMBER

The authors propose ways for the operational commander to exploit the psychological impact of heavy bombers in conventional campaigns. The sources, nature, and present state of the bomber's "mystique" are analyzed. Positive (favorable), and negative (unfavorable) emotional responses to bombing campaigns during both World Wars, the Korean and Vietnam Conflicts, and other crises are examined in light of behaviors evinced by friendly and enemy civilians and soldiers in these conflicts. The authors find that bombing civilian targets directly (which is illegal except in rare circumstances) or indirectly (which is inadvisable) produces the most negative effects; bombing military targets produce the most positive effects. The authors conclude the operational commander can best exploit the psychological impact of the heavy bomber by employing it against military vulnerabilities in campaigns designed to minimize civilian casualties. Such campaigns produce the most positive effects in the enemy leadership, as evidenced by favorable changes in the enemy's behavior or activities. Recommendations are offered for maximizing positive effects, and minimizing negative effects, of using heavy bombers.

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## INTRODUCTION

"Its mystery is half its power."[1]  So did J.M. Spaight
describe the ambience surrounding the heavy bomber in 1930.
The essence of Spaight's words reverberates in those of
Brigadier General Pat Caruana, senior bomber commander in the
Desert Storm operation: "'It has an aura about it.'"[2]  In
1991, General Caruana was describing a B-52--an aircraft which
Spaight could only dimly imagine 61 years ago.  Yet the mys-
tery endures--the heavy bomber is surrounded by an aura unlike
any other aerospace platform, created by its range, firepower,
and flexibility.  That unique synergy of aura and capability
has had a marked psychological impact which magnifies the
bomber's power--both positive and negative.

The existence of the bomber poses a crucial question
which we propose to answer:  What is the appropriate means of
applying the long-range, heavy bomber to make greatest use of
psychological strength?  We assert that the bomber is a versa-
tile weapon whose history and current destructive capability
limit the targets it can be used to strike.  We maintain that
the appropriate targets in conventional war are military and
that civilian damage must be strictly limited for both prag-

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matic and ethical reasons. Lastly, we contend that the opera-
tional commander's proper focus for the bomber's psychological
effect is on enemy leadership and military forces, not civil-
ian morale.

## Dimensions of the Question

Recognizing the bomber's potential psychological impact
is one thing, but realizing that potential is another. An in-
cident from recent history illustrates the dilemma facing the
commander who is trying to exploit the bomber's mystique, and
serves as a point of departure to illustrate the difficulty of
employing air assets.

Retired Air Force Chief of Staff General Michael J. Dugan
recently stated that, if war erupted with Iraq over the inva-
sion of Kuwait, "U.S. military air power--including a massive
bombing campaign against Baghdad that specifically targets
Iraqi president Saddam Hussein"--would be the United States'
best available option to liberate Kuwait. "`The cutting edge
would be in downtown Baghdad. This [bombing] would not be
nibbling at the edges,'" Dugan said. "`If I want to hurt you,
it would be at home, not out in the woods someplace.'" He
recommended capitalizing on the air power's unique psychologi-
cal impact by attacking culturally significant targets
throughout Iraq. Dugan was looking for "`centers of gravity,
where air power could make a difference early on."[3]

General Dugan was not opening a vendetta against Iraqi civilians. Rather, he was stating concepts which are the Air Force's "central beliefs for waging war in order to achieve victory." Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, enjoins the commander to "exploit the psychological impact of aerospace power [to] produce emotional responses in the armed forces and the people of a nation or alliance":

> These responses, depending upon how a commander employs aerospace forces, can be of a positive or negative nature. By carefully considering the social structure of a nation or alliance, commanders can exploit those elements of an enemy's structure that may divide or undermine unity of purpose, generate internal strife or force a military or political change in objectives.[4]

The difficulty in choosing targets for the heavy bomber--or any aircraft--lies in balancing the ability to destroy with the ability to persuade. Unlike ground forces, the bomber can destroy but not control; so the debate on air target selection has been lively for seventy years and is still so. The firestorm over General Dugan's remarks reflects the fact that, while the concepts are simple, their application is most definitely not.

A commander faces this paradox: he must break the enemy's will to fight without directly attacking what is traditionally his weakest spot: his civilians and population centers. Do the prohibitions in customary international law, combined with the current and foreseeable political climate, prohibit the

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commander from obtaining the maximum psychological impact possible from heavy bombers? We will argue they do not.

History indicates that the operational commander can best capitalize on and magnify the bomber's mystique by employing it against the enemy's military vulnerablilities rather than cultural targets. We argue that such targeting has the greatest psychological impact where it counts the most: on those using military means to continue politics--the enemy leadership. "When we speak of destroying enemy forces," Clausewitz says, "we must emphasize that nothing obliges us to limit this idea to physical forces: the moral element must also be considered. The two interact throughout: they are inseparable." The commander should never forget that, ultimately, "fighting is the only possible means" to attain the political objective in war:

> Everything is governed by a supreme law, the *decision by force of arms* [emphasis in original]. If the opponent does seek battle, this recourse can never be denied him. A commander who prefers another strategy must first be sure that his opponent either will not appeal to that supreme tribunal--force--or that he will lose the verdict if he does. To sum up: of all the possible aims in war, the destruction of the enemy's armed forces always appears as the highest.[5]

The bomber is a suitable instrument of force if the opponent chooses to do battle; it is a powerful deterrent to keep him from doing so.

The first part of this paper discuss the framework for analysis. We will then explore the relevance of our premise

to today's forces. Then we will consider the origins of the
bomber's mystique and explore the doctrine which guided its
employment in three major conflicts: World War II, Korea, and
Vietnam. Next, we'll identify significant positive and nega-
tive psychological effects which the commander must consider
when developing his concept of operations, using examples to
illustrate those effects. Finally, we'll present conclusions
and recommendations which will help the commander obtain the
maximum psychological impact from heavy bombers, should they
be used in his campaign. In particular, we suggest that the
commander should focus the bomber's psychological impact on
the "ruler," or "rulers," of the enemy state by attacking his
military vulnerabilities, and that he should strenuously avoid
civilian and cultural targets.

### Framework For Analysis

First and foremost, this paper deals with the uses of the
heavy bomber in conventional operations. Heavy bombers are
the B-52, the B-1, and (potentially) the B-2. These weapon
systems are normally referred to as "strategic" bombers, and
this term has specific meaning in the nuclear and arms control
lexicon, but the term obscures the fact that heavy bombers
have both strategic and tactical utility. When employed
against enemy targets as an independent means to enemy defeat,
operating alone, the heavy bomber is performing a strategic
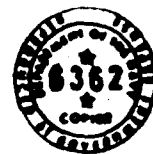mission. When employed against enemy forces directly and in

combination with other forces, it performs an operational role with potential strategic consequences.

The nuclear overtone cannot be separated from current U.S. heavy bombers. While we acknowledge and will occasionally deal with this influence, the primary emphasis is on non-nuclear employment of the bomber in support of a theater commander's warfighting concept.

This discussion is conducted in an atmosphere whereby air power has both been accorded special status, and is judged especially harshly. Perhaps as a consequence of years of over-selling air power—and the bomber in particular—the debate over air power is far more visceral than, say, the debate over naval gunfire or infantry tactics. Major attention is devoted to why the debate has been so polarized, and the problems springing from that polarization.

In no sense do we advocate that the heavy bomber is the solution for every problem, or even a majority of problems. Like other weapon systems, bombers have strengths and weaknesses, some of which we will explore in this paper.

Finally, air power is particularly difficult to assign a meaningful measure of effectiveness. Indeed, one of the problems with the debate over air power is that both advocates and critics have traditionally sought to determine whether air power was *decisive*, not *effective*. We will not propose a cookbook of recipes for measuring either one; rather, we simply point out that bombs dropped, targets struck, targets de-

stroyed, and sortie loss rates are all useful measures of efficiency, but not effectiveness. The sole criterion by which a theater commander can truly determine the effectiveness of his air campaign is, as stated in AFP 200-17, "the measure of its impact on the enemy's behavior or activities."[6] This measure is not reassuring; it is not quantitative; it may require significant judgment and intelligence support; but it is far more accurate and useful than the aeronautical equivalent of body counts. We advance it here, despite its difficulty, because there is no good alternative.

# CHAPTER II

## WHY RECONSIDER THIS TIRED, OLD SUBJECT?

### There is a Bomber Force "In Being"

While it may seem somewhat obvious, the first persuasive reason to engage in the debate over uses for heavy bombers is simply that they exist in the current U.S. force structure. The bomber is an accepted part of the Triad (despite differing opinions on the contribution it makes to deterrence), and as a result of this strategic deterrent mission, the United States has about 350 operational heavy bombers in service today. Of those aircraft, 68 B-52Gs are dedicated to conventional operations. The FY 92 *Department of Defense budget* proposes to retire these aircraft. The remaining aircraft, both B-52H models and B-1Bs, have not been designated "conventional-only;" they retain both nuclear and conventional capability. The Administration's proposal to fund four B-2s during FY 1992, as part of an eventual goal of 75 of the aircraft, indicates a serious intent to keep U.S. heavy bomber capability alive--including conventional use for the aircraft, according to Air Force Secretary Donald Rice.[7]

Even if the B-52Gs are retired as proposed--an issue which may be readdressed in light of Desert Storm's eventual results--and the B-2A cancelled, the US would still retain significant heavy bomber capability. That capability is not

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ideal with respect to the conventional role, since the B-1B's conventional ordnance capability is currently more limited than that of the B-52G. With time and resources, the B-1's weapon selection can certainly be improved, but even the current configuration of 84 500-pound general purpose bombs represents formidable firepower. A combination of the B-1B with the B-52H yields a robust conventional ordnance capability that gives combatant commanders great flexibility in three areas: matching platforms to delivery requirements, substantial firepower to targets, and targets to effective weapons.[8]

Unlike years past, Air Force decision makers are increasingly focused on a dual role for the bomber force: conventional and nuclear, with the requirement to equip and train for both.[9] In the words of one SAC general officer, the "SIOP is critical, but we can and must find the flexibility to fight conventionally."[10] Modern command and control, inflight refueling, and aircraft speed, maneuverability, and range attributes are capable enough to match a wide variety of employment scenarios. Conventional capability exists today, will improve tomorrow, and is receiving support from the highest levels of the Air Force. It is not a passing fancy, but is here to stay for compelling reasons.

### Bomber Platform Capability

The technical ability of a bomber to do its job depends on two basic functions: survival along the route to and from

the weapon release points, and ability to put weapons on target with sufficient precision to achieve the desired degree of destruction. These two functions depend on the bomber and crew combination, but depend just as much on a responsive planning, logistical, maintenance, and C2 support structure if the bomber is to have maximum utility. Today's bomber force has reached the point where its ability to penetrate and deliver accurately are equal to any likely task, but it has not always been so.

To get World War Two bombers to the bomb release line was difficult and deadly. During the month of October 1943, a mere four Allied raids resulted in the loss of thirty percent of the operational American bombers in Europe. The bombers were unsupported by other air assets and flying against a Luftwaffe still strong, but the losses were staggering both to crews and their leadership.[11]

In 1943, the average error in aiming point for bomber crews in Europe was 87.5 feet; the circular error probable (CEP) of bombs around that aiming point was 820 feet. The average "combat box" of 18 aircraft would drop a bomb box of 2400 feet by 2400 feet. Dropping 108 bombs from that formation, the formation had a 75% probability of one hit on 400 by 500 foot target. To ensure a 99.99% probability of a single hit on a specific target required six combat boxes of aircraft dropping 648 weapons.[12]

Technology has radically altered the situation today. In
Vietnam, against what has been called the most heavily de-
fended airspace in history, B-52s striking Hanoi suffered only
four percent losses over the eleven days of Linebacker II.
Writing in 1979, B/Gen James McCarthy notes that the
B-52s which conducted those raids were old and becoming out-
dated--yet in Iraq today, that same airframe is conducting
heavy bombardment operations again, with no combat losses
whatsoever at the date of this writing. In both cases, B-52s
have operated with support from other air assets--but the dra-
matic increase in ability to deliver ordnance with acceptable
losses is nevertheless startling.[13] In the unsupported pene-
trator role, it is interesting to note that the B-1B's pene-
tration speed is actually faster than the
F-16's. The preconception of the heavy bomber as a necessar-
ily slow, lumbering, and easy target for enemy defenses is
wrong. It is still not invulnerable, but speed, agility, and
stealth make the modern heavy bomber individually much more
likely to survive a threat environment than its predecessor.

The accuracy a commander can expect from heavy bombers
today is orders of magnitude beyond the World War II paradigm.
While the heavy bomber can now strike point targets with pre-
cision munitions, even traditional "carpet bombing" attacks
are a much more precise and discriminating tool. The Hamburg
raids in July 1943 provide a baseline. Between 24 July and 2
August, British forces dropped nine thousand tons of ordnance

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in 3,095 sorties, resulting in an estimated 42,000 Germans dead.[14] During Linebacker II, fifteen thousand tons of ordnance were dropped in 729 sorties, with Hanoi claiming a little over 1600 civilian deaths.[15] Today, while the real results of Desert Storm bombardment are far from clear, the Allied forces are reputed to have dropped "more than used in all of World War II" with an Iraqi-claimed civilian death toll of only 320.[16]

Senator John McCain, in recent hearings on the Persian Gulf, put it succinctly:

> We have the capability to carry out not "surgical" strikes, but strikes which would be concentrated on military, air defense, command and control and communications, which I think would go a long, long way in carrying out the mission which we seek.[17]

Clearly, technology has given military leaders a tremendous capability to minimize, though not eliminate, civilian casualties, *and the mass firepower of the heavy bomber can be applied with all the precision necessary.* Just as important, it has given the heavy bomber the capability of hitting targets on the first strike, even when close to friendly forces—a far cry from the Cobra bombings in World War II.

## Political and Military Environment

### Changing Superpower Relationships

When the Berlin Wall fell in October of 1990, it heralded a new lease on life for the conventional bomber. The result-

ing decrease in the likelihood of a European conflict involv-
ing the two superpowers greatly weakened one compelling argu-
ment against conventional use of heavies.  As Thomas Keaney
has written:

> "The question of commitment of bombers would be a
> dilemma for the Joint Chiefs of Staff of whether to
> throw in all forces in an attempt to keep the war
> contained conventionally and in favorable position
> for NATO, or to maintain the bombers in the nuclear
> deterrent role. . . .A crisis in Europe would call
> for a maximum alert posture for all nuclear bombers.
> Because of the bomber's nuclear deterrent commit-
> ment, when the European situation is the most des-
> perate, that is precisely the time when bombers are
> least likely to be available."18

Understandably, withdrawal of heavy bombers from his theater
in a global crisis situation could make a theater commander
reluctant to base contingency planning on their use.  Despite
this, the heavy bomber has been used extensively in every ma-
jor conventional conflict since its birth--World War II, Ko-
rea, Vietnam, Iraq.  It has been used as a tool of intimida-
tion in lesser confrontations, such as Berlin, Quemoy and
Matsu, Cuba, and others.  Lessened tension and verifiable de-
creases in threat level from the USSR make what has happened
for the last forty-six years now "comfortable."

United States nuclear-capable heavy bombers must be
available to perform the strategic nuclear deterrence and of-
fense roles in crisis--but the likelihood of nuclear face-off
with the Soviets while a theater commander fights a war re-
quiring heavy bombers is much less than it might have been in
the past.  If there *is* a face-off, there will probably be

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warning--and then the resources will have to be allocated, just as scarce resources always are. This trade-off is perpetually uncomfortable, but the Joint Chiefs may now truly be able to avoid the dangerous position that Keaney described.

### Fiscal Environment

Dizzying reductions in planned defense growth, like those in the FY 1992 budget, keenly illuminate the issue of heavy bombers as a theater asset. On one hand, the 197-bomber force proposed for the future (composed of B-1B and B-52H aircraft, with funding for B-2 prototypes) would become even more important as SIOP deterrent assets. All could be expected to remain within the Strategic Arms Reduction Talks' compass, since they are clearly nuclear capable now and since both sides have historically preferred counting rules that favored bombers over ICBMs.[19] On the other hand, a smaller bomber force will mean that each aircraft will contribute a greater percentage of US national air striking power. The conventional weapons capability exists, and it seems imprudent to reserve it solely for the nuclear deterrent role. There will be fewer aggregate air assets available to theater commanders and the National Command Authority--but it is unlikely they can afford to forego use of heavy bombers in an era when their likelihood of full SIOP employment is lower than any time in history, and

when "tactical" aircraft numbers available are shrinking as well.

### Withdrawal from Forward Bases

Shrinking budgets and aggressive arms control negotiations are likely to be accompanied by disappearing bases, making the long-range air and naval forces of the country even more vital for limited intervention, crisis response and interim warfighting tasks. Secretary of the Air Force Donald Rice has stated that the Air Force could, by 1995, have to withdraw forces from or close 40 overseas installations.[20] He has consistently asserted that "the bomber's range permits operations from secure bases, virtually independent of foreign basing and airspace requirements in forward locations."[21] It is irrelevant to this paper to discuss detailed methods for conducting such long-distance wars--but it is apparent that US basing flexibility is on the decrease, naval coverage may be similarly lessened, and the long-range heavy bomber may soon be one of the very few weapons US policymakers will have at hand to carry out an immediate, substantial military action at long distance.

### Threats from Non-Soviet World

The outbreak of war with Iraq tainted the euphoria that had gripped the United States and most of the world as communism seemed to collapse, yet it also served as a reminder that

challenges exist to U.S. security that have nothing to do with the Soviet Union, and that their character is likely to change. As noted in the *1990 National Security Strategy of the United States*, "the erosion of U.S.-Soviet bipolarity could permit and in some cases encourage the growth of these challenges."[22]

Threats to U.S. interests--whether Libya, Vietnam, India, Central America, Brazil, or some other as yet unanticipated place--may or may not be appropriately responded to with heavy bomber use or threat of use. Yet war--and our opponents--will likely be more sophisticated and destructive than today. It is not inconceivable that the U.S. may need to act to preempt development of nuclear weapons or actual delivery of those weapons by terrorist states, and do so at long range, with no cooperation from other states. In short, the U.S. may have to deter more than just the Soviet Union, through readiness to project air power directly against the potential threat.

## Summary--Why The Heavy Bomber Remains Relevant

The United States possesses a powerful heavy bomber force today and will probably augment it in the future. That force is highly survivable against the likely regional threats, can carry large payloads for long distances, and deliver them accurately enough to strike the target and minimize collateral damage, maximizing the heavy bomber's psychological impact. Decreased political tension between the US and USSR makes the

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question of planning to use large percentages of the bomber force in conventional conflict possible, even as the increased likelihood of regional conventional war makes such planning advisable. Austere budgets in the future will cut forces available to deal with those conflicts, making efficient, effective use of remaining assets crucial if we are to protect US national interests. Finally, decreasing US presence overseas may require operating at greater distances from the remaining bases, something at which the heavy bomber excels, and which few other aircraft can do if the requirement is to actually *fight* at long range. The issue demands the operational commander's consideration.

# CHAPTER III

## DEVELOPMENT OF THE "MYSTERY"

### Flights of Fancy

As the commander develops his concept of operations for exploiting the psychological impact of the heavy bomber, he must understand the sources and nature of the bomber's mystique so he can properly capitalize on its emotional power and avoid its negative effects.

The sources of the bomber's aura first appeared in myths, legends, and literature. Daedalus and Icarus flew on wings fashioned of wax and feathers in ancient Grecian lore. Scheherazade told of Sinbad's encounter with the Rocs, giant birds which carried great boulders in their talons and dropped them on defenseless cities. In the poem "Locksley Hall" (1842), Alfred, Lord Tennyson foresaw "a ghastly dew" raining from "the nations' airy navies grappling in the central blue."[23] Robur, the hero of Jules Verne's _Clipper of the Clouds_ (1873), "dashed from continent to continent in a well-armed aeronef"; H. G. Wells opened his novel, _War in the Air_ (1908), with a massive aerial attack on New York City by German bombers.[24] When technology made the heavy bomber possible, soldier, statesman, and layman alike already had notions of what it could do.

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## Advent of the Bomber

The bomber's mystique began to develop after it made its first combat appearance, near the end of World War I. The German Gotha and Giant bomber raids on England in May-June 1917 "marked the debut of the heavy strategic bomber. These terror attacks were designed to collapse civilian morale. They came as a shock," and elicited British reprisals.[25] Panic ensued during the first raid; the next time the bombers come over, thousands fled into the countryside. "The Giant and Gotha Attacks were thus the first to generate in civilians the terrible fear of being bombed by airplanes. This profound psychological reaction was lasting."[26] The commander should understand how early technologies and experiences were the genesis of the now-classical bomber paradigm: "carpet-bomb the cities."

### Technology's Influence

Nascent aircraft technology had a marked and lasting effect on both the doctrine and concept of bomber operations. "Technology, as evidenced by new weapons and improved means of delivery, has a profound effect on how a nation's military forces plan to do their business."[–] Air power doctrine is reactionary--it responds to new technology available and is modified based on the results of a technology-doctrine synthesis in the cauldron of combat.

Three technological factors most affected bomber doctrine and employment: bomb sight inaccuracy, inadequate navigation aids, and aircraft vulnerability. These factors drove the bomber toward large, undefended, "area" targets--primarily cities. Attacking that target set had produced psychological effects which seemed exponentially greater than the actual damage done; hence, the notion arose that the bomber could achieve its maximum psychological effect against the civilian population.[28] This notion persists to this day.

The early bombers' inaccuracy also drove airmen to employ them in massive, daytime, wave attacks to ensure adequate destruction. Again, technology and environment drove doctrine. In the 1920's, for instance, the French Air Service developed the "bomb box" techniques, wherein successive formations of bombers would drop "in a rectangular pattern 250-320 feet wide and 320 feet or more long."[29] Thus was "area bombing" born.

Aircraft vulnerability became a greater concern as fighters and ground fire became more deadly, and also drove the bomber toward the "area" target set and away from close air support or battlefield air interdiction.[30] In World War I, hitting a dug-in enemy with attack aircraft was much more dangerous than striking cities, rail heads, or factories. Bombsighting problems against precision targets, like bunkers or trenches, forced air crews to use low-level delivery tactics. The withering fire encountered in these low-level attacks produced loss rates as high as 25% per day. Hence, air-

craft vulnerability drove bombers to high altitude, deep
strikes against largely undefended targets, often at night--
when visibility and inaccuracy mandated area bombing.

### The Attraction of Morale Bombing

Other factors drove bombers toward city-bombing. A dic-
tum of Napoleonic warfare was still quoted in 1914--"when the
enemy's capital came under bombardment the war was considered
over":

> Lord Montagu of Beaulieu predicted in 1909 that a
> single massive air attack on London would disable
> the entire country. The destruction of parliament,
> the ministries, the post and telegraph offices--the
> central nervous system of the body politic--would
> produce in that body a massive and fatal paralysis.[31]

Britain's stoicism during The Blitz would prove Lord Montagu
dead wrong, but in 1909 his prediction was based on informed
imagination--the Wright brothers had first flown only six
years earlier.

So the most promising psychological target set was also
the most controversial: population centers and civilian
morale. The bomber's potential for destruction seemed far
greater than that of artillery or naval gunfire. The Gotha
raids were considered a foretaste of aerial devastation. The
actual damage and casualties wrought by such attacks in World
War I were relatively light; for instance, a total of 1414
people were killed and 3416 injured in all aircraft attacks on
Britain.[32] Yet in many instances, just the threat of an air

attack had caused chaos in the civilian populace. As people ran for air raid shelters, production and commerce stopped even if no bombardment actually occurred.

World War I proved more suggestive than definitive in establishing the best psychological target set for the heavy bomber. The bombing attacks were actually small-scale, and took place near the end of the war, after the hellish trenches had claimed millions of lives and weakened civilian morale in themselves. The technologies and experiences of World War I were simply too limited to provide hard answers.

### Prophets of Air Power

In the absence of hard data, the early advocates of air power extrapolated from World War I to derive their doctrine for using the revolutionary war machine. Men such as Sir Hugh Trenchard, General Hans von Seeckt and Admiral William A. Moffett tirelessly championed the air power's development. But to two men, Giulio Douhet and Billy Mitchell, "the power of the air weapon came with the force of revelation. They believed and then they became evangelists."[33]

Giulio Douhet stood "at the head of a procession of men who would seize the immense idea of what the airplane could mean to war."[34] An artilleryman by training, he forecasted the destructive power of bombers by converting an air attack into the equivalent of an artillery barrage--a paradigm he was more comfortable with.[35] Impressed by the panic engendered by the

German Gotha and Giant bomber raids on English cities in World War I, Douhet prophesied an aerial Armageddon in the next war. This quote from Douhet's epistle of air power, *The Command of the Air* (1921), exemplifies his approach:

> Here is what would be likely to happen to the center of the city within a radius of about 250 meters: Within a few minutes some 20 tons of high explosive, incendiary, and gas bombs would rain down. First would come explosions, then fires, then deadly gases floating on the surface and preventing any approach to the stricken area. As the hours passed and the night advanced, the fires would spread while the poison gas paralyzed all life. By the following day the life of the city would be suspended; and if it happened to be a junction on some important artery of communication traffic would be suspended.

Douhet predicted a city's death from ordnance representing less than the capacity of ten B-17s, two B-29s, and just over one B-52--covering a target area only three tenths of a mile across. True, he assumes the use of incendiaries and gas, but reality proved that the keyword in his thought is "imagine."

By extrapolation, he goes on to predict that scores of such raids would disrupt the life of an entire nation:

> . . .normal life would be impossible in this constant nightmare of imminent death and destruction. And if on the second day another ten, twenty, or fifty cities were bombed, who could keep all those lost, panic-stricken people from fleeing to the open countryside to escape this terror from the air?

Douhet concludes that a "complete breakdown of the social structure cannot but take place in a country subjected to this merciless pounding form the air."[36]

Though bombing civilians would be terrible, Douhet believed it would actually be more humane in the long run:

"Mercifully, the decision will be quick in this kind of war, since the decisive blows will be directed at civilians, that element of the countries at war least able to sustain them."[37] Bombing civilians seemed to offer the opportunity to deliver the fabled "knockout blow" on the first punch.

On the other side of the Atlantic, America had its own aerial visionary: William "Billy" Mitchell. As significant as his highly visible public and political image was, his influence on the development of American air power doctrine between the wars was even more pivotal.

Mitchell's testimony before the House committee on Military Affairs in February 1926 clearly states his vision of air power:

> There has never been anything that has come which has changed war in the way the advent of air power has. The method of prosecuting a war in the old days always was to get at the vital centers of the country in order to paralyze the resistance. This meant the centers of production, the centers of population, the agricultural districts, the animal industry, communications—anything that tended to keep up war. Now, in order to keep the enemy out of that, armies were spread in front of those places and protected them by their flesh and blood. . . . Now we can get today to these vital centers by air power . . . straight to the vital centers, the industrial centers through the use of an air force and hit them. That is the modern theory of making war.[38]

This thinking pervaded the doctrine and curriculum developed during the 1930s by the Air Corps Tactical School, and still echoes in the current Air Force Manual 1-1.

So the bombardment campaigns of World War I and the doctrine of the interwar years indicated two roles for the heavy

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bomber: destruction of will, and destruction of means. But some, like Spaight, became convinced that targeting purely civilian objectives was morally repugnant, and that the bomber derived its "mysterious power" merely from "the shock of the new." The "bomber was like any new weapon: for a time after its introduction it had a powerful psychological effect. Firearms enjoyed the same sort of status when they were first introduced." Therefore, the bomber's power would ultimately decline with decreasing novelty. Conversely, Douhet and others argued that "the campaign against morale was more important," because the bomber "alone could attack the most vulnerable element in the population, masses of civilians" who lacked the discipline, training, and tenacity of armed forces.[39]

## International Law and the Bomber

Politicians and the public recognized the bomber's potential for indiscriminate terror early on; between the World Wars they made serious efforts to limit its development and deployment. Beginning in 1907, nations met at the Hague to draft rules to protect civilians from artillery and aerial bombardment. Though most nations claimed to adhere generally to these rules and others drafted in 1923, the reality is that adherence has been diluted as warfare became more violent. Nevertheless, nations have attempted to maintain a semblance

of regard for the law by claiming, for example, that civilians killed by bombing in World War were killed incidentally to attacks on industry. The key is that, despite deviations from the letter (some gross and flagrant) the law itself has enjoyed continuous support. The key provisions of the rules protect civilians from intentional or indiscriminate attack.

### Summary

The heavy bomber's mystique had its origins in the mists of myth and the depths of the human psyche. The unprecedented bombing raids of World War I heightened this mystique out of all proportion to the actual damage done by those attacks. Prophets like Douhet and Mitchell extrapolated on the psychological response to those attacks and predicted even greater effects in future wars. The evangelical certitude of their predictions created clear expectations of what the bomber's psychological clout would be. Those expectations affect the way we view the heavy bomber to this day. We will now turn to the specific psychological elements of air power which manifested themselves in World War II, Korea, and Vietnam. These practical laboratories provide the commander with guidelines for exploiting the bomber's aura.

# CHAPTER IV

## BOMBING--NEGATIVE PSYCHOLOGICAL EFFECTS

> "Commanders should always consider the psychological
> impact of air actions to ensure that those actions
> support the overall objective and that the full in-
> fluence of air power will achieve the desired ef-
> fect."[40]
>
> -USAF Basic Aerospace Doctrine

Expectations of the bomber's psychological impact did not
coincide with reality in World War II, Korea, or Vietnam.
Heavy bombers in these conflicts elicited both the positive
and negative responses which AFM 1-1 advises the commander to
consider when exploiting the emotional effect of air actions.
We will discuss negative responses first, since these have
produced frustration in political and military leaders when
bombing results have not met predictions. We define a nega-
tive result as one which strengthens the enemy's will or capa-
bility to resist, or which weakens our will to pursue national
objectives.

Despite Douhet's prophecies, bombing civilian targets, as
such, has usually produced the most negative psychological ef-
fects. Results of this targeting have been inconclusive at
best, and counterproductive at worst. Four general problems
arise when the commander employs heavy bombers. Three of
these are associated with objectives in civilian areas, with
the other equally applicable to military or civilian targets:

- Attacks on civilian will are difficult

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- Heavy bomber use carries the stigma of WWII overkill

- Attacks on cultural targets are ineffective and illegal

- Fast airplanes engender dangerous impatience


## Civilian Will--An Elusive Target

Edward Luttwak asserts that air power "cannot break the morale of populations. The morale of populations is not a physical target and cannot be bombed." That is, air power "is a mechanical instrument and can only achieve mechanical results"--the destruction of physical objects.[41] Yet many air targeters have believed that if they could just find the right physical target, they really could break the people's will.

Though morale bombing seemed to hold much promise between the world wars, "none of the belligerents began [WW II] with plans for an air assault against civilian populations--this includes Nazi Germany.[42] But as air strikes against purely military targets gradually failed to produce the desired results, the bombers were turned on civilians in the hope that they could terrorize civilians, thereby reducing worker efficiency and, hopefully, military-industrial output.

Over 71,000 metric tons of incendiaries and high explosives were dropped on the British Isles during the famous Blitz, and over 60,000 Britons lost their lives.[43] Yet the British will remained firm as it had in World War I. Terror bombing had not reduced England to chaos. Other populations

displayed similar stoicism during "the last good war." The
Combined Bomber Offensive, including The Battle of Berlin, Op-
eration Thunderclap, and other air offensives against the
German homeland sought to demoralize the German population and
wrought massive damage: almost 7.5 million Germans were home-
less by the end of the war, and over 593,000 were dead. The
Japanese populace endured even more: over 8 million were home-
less at war's end; more Japanese civilians died in firebombing
raids and the atomic attacks than did Japanese soldiers in
combat[44].

The U.S. Strategic Bombing Survey (USSBS) attributed
civilian endurance in Germany to Nazi "police control" of the
populace; USSBS authors maintained that the Germans refused to
quit because they feared reprisals from their own government
more than the Allied bombing.[45] This conclusion has some ob-
vious merit, but it doesn't jibe with the British experience
in the Blitz--a free people had survived a vicious aerial on-
slaught with courage and dignity. What was the common
thread?

Overall, basic human decency, civility, and comradeship
were the bonds that held the societies together. Civilians
survived the air raids by "keeping their tempers, obeying the
law, and holding to the bonds of family, friendship, and fel-
lowship in common peril." The civilians' self-image was that
of "combatants in the struggle against the bomber, even though

their weapons were nothing more than sand buckets and blackout curtains."[46]

The exoduses which followed the surprise nuclear attacks on Hiroshima and Nagasaki very nearly approached the apotheosis of Douhet's aerial Armageddon. Yet "within hours many of the inhabitants" of both cities had returned, "and rescue efforts were being organized."[47] The fortitude displayed by citizens of Dresden, Hamburg, Osaka and Tokyo in those holocausts bear further witness to the average person's spiritual strength. Douhet's theories on civilian susceptibility to aerial bombardment did not hold in the unlimited arena of World War II.

Bombing civilian morale was no more effective during the limited conflicts in Korea and Vietnam. For example, while the "air pressure" campaign in Korea, and the Rolling Thunder and Linebacker raids in Vietnam, were primarily directed at military targets, they had the dual purpose of breaking the morale of the civilian population.[48] But in both conflicts, minimizing civilian casualties was a fundamental political constraint. Residential areas of major cities like Pyongyang and Hanoi were off-limits, and crews had to be sure of their aim points and targets before release.[49] The emphasis on counterforce targeting limited civilian casualties and wide-spread destruction, perforce.

Also, a revolution had occurred in bombing accuracy since World War II. Radar bombing in all weather conditions meant

heavy bombers no longer had to strike targets in massive waves; specific targets could be struck with relative precision, minimizing collateral damage. This allowed Admiral Thomas Moorer, Chairman of the Joint Chiefs of Staff in 1972, to give this guidance to the Linebacker II planners: "I want the people of Hanoi to hear the bombs, but minimize damage to the civilian populace."[50]

Yet the myth persists that untold civilians died in these campaigns, when the exact opposite is true. The North Koreans announced that there were 7,000 casualties in the 11 July 1952 attack on Pyongyang, but despite their propaganda to the contrary, no United Nations aircraft "carpet-bombed" the city.[51] In Vietnam, all "air raids against the North in 1972 caused an estimated 13,000 deaths; even the intense Linebacker II raids killed only 1,318 in Hanoi and 305 in Haiphong, by North Vietnam's own count."[52] And though media accounts claimed otherwise, the Linebacker raids did not cause mass panic or social breakdown.[53] While the respective campaigns in both conflicts did seem to compel the North Koreans and Vietnamese to resume negotiations, their renewed interest was not due to piles of bodies in their city streets. The raids may have frightened civilians, but the social fabric held.

## The Legacy of World War II--Cologne, Dresden, Tokyo

Cities that almost died in World War II left vivid impressions in the common psyche. And though the bomber's accu-

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racy has increased by an order of magnitude, so has its destructive capacity. Even when heavy bombers appear in a limited conventional campaign, their essence evokes images of Douhet's aerial Armageddon. Maintaining public support for a war is crucial in a democracy; the commander must realize that the mere presence of the heavy bomber in his campaign will allow the enemy to charge him with "bombing them back to the Stone Age."

The commander should also realize that the nature of the conflict itself will modify public reaction to the heavy bomber. In an unlimited war, like World War II, when the destruction of the enemy state is the goal, it is easier to justify inflicting heavy collateral damage on civilians. Even so, "most people have had difficulty in accepting the argument that since the entire nation now makes war, any part of that nation may be justifiably attacked."[54] Few Americans would agree that a power plant full of workers and those same workers gathered in an adjacent field for a company picnic are equivalent military targets. In a limited conflict, Americans expect the commander to minimize collateral damage. But even when the commander is as discriminate in his targeting and execution as humanly possible, he should expect some public discomfort, which may be exacerbated by the domestic and international media.

Since the propaganda wars of the 1940s, the advent of television has completely transformed this dimension of psy-

chological warfare--the Vietnam conflict has been called the first "television war." Throughout Rolling Thunder and the Linebacker raids, "North Vietnamese propaganda hammered the theme that U.S. bombing was directed at civilian targets."[55] The American press in particular was quick to publish this propaganda, and its editorial stance was clearly hostile to using heavy bombers throughout the war.[56] This hostility reached its zenith during Linebacker II campaign in December 1972. Despite editorial charges of indiscriminate "terror bombing," there is "no evidence that the U.S. Air Force engaged in the 'carpet bombing' of civilian centers. Such charges, which were prominently featured in the prestige press, were without foundation."[57] Yet these charges perpetuated the myth that B-52s were depopulating the North's cities.

## Cultural Targets

The tenets of international law, contemporary American moral standards, careful target planning, and precise execution can also help the commander avoid attacking targets which are likely to produce negative emotional responses in the enemy people: culturally significant objects. To illustrate this concept we will examine applicable Air Force doctrine, define "culture," identify "culturally significant objects," and analyze the contradictions inherent in this targeting scheme.

Current Air Force doctrine contends that knowing "the . . . cultural makeup of an enemy allows a commander to tailor actions to create distrust among allies or dissipate faith in political and military leadership.[58] General Dugan echoed this doctrine in his statements, and it appears to be good advice, but when the commander has to actually follow it, fundamental problems arise.

Attacking the enemy's culture is like attacking his population's will—culture has no latitude-longitude component. If air planners seek physical targets which embody the enemy's cultural makeup, they must target what the *American Heritage Dictionary* calls "the totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought characteristic of a community or population." Attempting to attack those targets brings the commander into immediate conflict with international law and American moral standards.

Given the definition of culture, above, are there any cultural aspects both subject to, and profitable for, attack? The most obvious targets would be museums, churches, charitable buildings, and historical monuments, which are specifically protected under international law. Obviously, attacking such targets if they are not used for military purposes is more likely to arouse the enemy populace than to subdue it, hence the Desert Storm rules of engagement which place mosques off-limits. Allies who share a common culture with the enemy

may desert the cause if a commander from another culture wantonly attacks targets which embody core beliefs. As Kennett notes, "If there was a lesson to be read in the ruins of Berlin, Coventry, and Hiroshima, it was the terrible fragility of all man's works and treasures--and the tenacity and endurance of man himself."[59]

Some cultural targets may be attacked under the rubric that the enemy is using them for military purposes. A vivid instance of targeting such "dual aspect" cultural sites occurred in World War II, when the Abbey of Monte Cassino was smashed by several days of bombing. General Eisenhower had established rules of engagement for the invasion of Europe which authorized bombarding historical targets only in extreme military circumstances. Despite its unique status, Nazis were using the abbey as a fortress, and British commanders felt it had to be "softened up" to ensure a successful Allied assault. In the end, the Abbey was pulverized, the bombardment did not dislodge the enemy troops, the frontal assault was brutal, but successful--and the Nazis gained valuable ammunition for the propaganda war, depicting the Allies as destroyers of Western civilization. Isolating and bypassing such targets, if possible, is by far the better option; the commander should avoid striking "dual aspect" cultural targets as much as possible to minimize the chance of stiffening, rather than weakening, enemy moral resistance.

The commander's own moral inhibitions may serve to limit attacks on cultural targets. In Korea and Vietnam, key agricultural areas seemed to present promising dual aspect targets. Attacks on such targets are technically legal under international law, so long as they "do not cause excessive injury to civilians and civilian objects" and "result in distinct and substantial military advantage depending upon the military uses of such objects."[60] Destroying the irrigation systems in either country would flood the rice fields, presenting both enemy troops and civilians with the prospect of mass starvation.

Yet Western political and military leaders in both conflicts were reluctant to launch unlimited bombing campaigns against these targets because they realized that the civilian population would suffer far more than the Communist armies. In Korea, General Weyland authorized air strikes "only against those dams which would, if breached, cause floodwaters to wipe out the North Korean lines of communication."[61] The North Vietnamese exploited American scruples (as the Iraqis appear to be doing now) and put air defense sites on some of the dikes. Although these sites were "authorized for attack if they were firing . . . our pilots exercised considerable restraint about hitting them."[62] When the dikes were hit, the North Vietnamese claimed the U.S. was targeting them directly and threatening their people with death and famine. But the

dikes remained almost wholly intact, negating these charges

and reducing negative emotional responses due to bombing.

The last cultural target set to be examined is one of the

"institutions" indicated by the definition of "culture": the

enemy leadership. Decapitation by air power seems a promising

strategy, but is targeting individual leaders with heavy

bombers a viable option? Probably not. First,

"decapitation" is probably illegal. A presidential executive

order prohibits assassinating heads of state, and interna-

tional custom places civilian leaders out of bounds, even in

wartime.[63] Second, air power "cannot destroy regimes. They

are not a physical target either. It is almost impossible to

tell how a follow-on leadership or the civilian society will

react to a leader's death. Finally, practical considerations

obviate this strategy, as Luttwak notes:

> Air power, for quite different reasons, cannot ac-
> tually get rid of national leaders. . . . That is
> because to kill a leader you must not only bomb the
> right city, not only the right building, but a room
> --and a room at exactly the right time.

Luttwak observes that the Allies heavily bombed Berlin in

World War II, but not even a fourth-level Nazi leader died in

these attacks.[64] At this writing, after three weeks of unre-

lenting air attacks on Iraqi command and control targets, Sad-

dam Hussein still lives, illustrating the difficulty of this

approach.

## The Pace of the Air Campaign Heightens Expectations

The last negative response we will discuss is the effect
the bomber has on the commander's own psyche. It arises out
of the nature of the bomber as a weapons platform. The bomber
flies, it flies fast, and it carries heavy payloads of power-
ful weapons. Accordingly, commanders have tended to expect
quick and decisive results. The early air power theorists
bolstered these expectations by asserting that the bomber's
speed, range, and payload would enable it to deliver a "knock-
out blow" in the opening stages of a war. When bombing cam-
paigns haven't knocked out the enemy in the early rounds, the
immediate response has been that the target set was wrong or
that air power was misapplied.

In World War II, General Arnold became increasingly im-
patient with the lack of "decisive" results in the European
and Pacific bombing campaigns, and constantly shifting target
sets evinced this impatience. In Europe, the 1941 AWPD-1 plan
established the now-classic infrastructure target set for the
bombing campaign: electrical power systems, transportation
systems, oil and petroleum industries, and the air defense
system. In January 1943, the Combined Bomber Offensive Plan
reaffirmed this target set, but added "the destruction of the
capability and will of the German people" to it. In May 1943,
the Luftwaffe became the number-one priority to pave the way
for D-Day. In March 1944, priority shifted to the rail system

in France; in June 1944, back to oil; in January 1945, to cities in eastern Germany to "confuse civilian evacuations" as people fled from the Russians; and in February 1945, to the heart of Berlin itself.[65] LeMay was sent to the Pacific Theatre to "get results" in the bombing campaign against Japan--he responded with night, low-altitude firebombing raids on Japan's cities.

There were operational factors in both campaigns which catalyzed some of these changes. But the shifts evinced a deeper frustration, as Kennett notes:

> All of the bombing offensives of the war, including that which the Luftwaffe waged against England in 1940-41, seem to have been launched with the expectations of quick and tangible results; when those results did not come, the bombers were directed against another target system and then another.[66]

Allied and Axis air commanders alike constantly tried to deliver the knock-out blow in World War II; perhaps America finally did, with "Fat Man" and "Little Boy" over Hiroshima and Nagasaki. General Arnold concluded,

> "The object of bombing is destruction. Despite our highly developed precision methods of bombing and our highly specialized types of bombs, this process involves a long and costly effort to obtain a cumulative effect'."[67]

This process repeated itself in Korea and Vietnam. Conceding the political constraints imposed on the bombing, both Communist nations withstood heavy bombardment for years. The stated purpose of "air pressure," Rolling Thunder, and Linebacker campaigns was to break the enemy's will.[68] The

shifts in target sets almost mirrored those in World War II as allied air forces sought the fabled knock-out blow to Kim Il Sung and Ho Chi Minh. Yet morale failed to crack until the enemy's military vulnerabilities were threatened, forcing the leaders to reevaluate their military strategies. Deriving maximum psychological power from the bomber by aiming it at military vulnerability is the subject of the next chapter.

### Summary of Negative Impact

First, civilian "morale"--or "will"--doesn't have geographic coordinates; it's extremely difficult to directly attack it. Trying to pick the right "morale" target set and destroy it can waste valuable time and resources.

Second, the massive bombing campaigns of World War II "stigmatized" the heavy bomber. Today, simply using massive aerial firepower leaves the commander open to charges of wreaking havoc on civilians, thereby violating customary international law. This occurs even if he employs precision bombing techniques and minimizes collateral damage. The heavy bomber's presence in a campaign may produce both domestic and international negative responses, eroding public and allied support for the war effort.

Third, attempting to attack the enemy's "cultural makeup" is a self-defeating strategy, because American moral inhibitions and international law obviate attacking targets which,

in traditional terms, are most culturally significant.  And attacking these objects may actually stiffen enemy morale.

Finally, the aircraft's inherent physical properties have an insidious, deleterious effect on the commander's own  psychology.  Because the airplane "flies fast" and delivers "fast weapons," commanders subconsciously expect "fast  results."  The commander's patience is a potential casualty of this phenomenon.  When expected results aren't forthcoming, the commander will be tempted to shift target sets.

Having examined the negative emotional responses which bombing the wrong targets, or the right targets too enthusiastically, can engender, we will now examine the productive psychological effects of bombers employed against the right targets.

# CHAPTER V

## BOMBING--POSITIVE PSYCHOLOGICAL EFFECTS

"Strategic actions normally involve attacks against
the vital elements of an enemy's war-sustaining ca-
pabilities and his will to wage war."[69]

-USAF Basic Aerospace Doctrine

"If you destroy their capability to win war, then
the will to wage war disappears also."[70]

-General Curtis E. LeMay

As we have discussed above, the heavy bomber's use in
warfare carries with it many clearly identifiable negative ef-
fects. The positive, or mission-enhancing, psychological ef-
fects of heavy bombers' air power are less numerous, but are
nonetheless militarily meaningful to the operational comman-
der. They are difficult to quantify, however, and perhaps for
that reason airmen tend to focus on objective measures of suc-
cess: targets destroyed versus aircraft lost or weapons ex-
pended, decreases in output of industrial commodities as a re-
sult of varying levels of effort to target sets, and so on.
In the discussion below, we will describe the three primary
ways in which employment of the heavy bomber influences the
psychology of the enemy, but the discourse will not be quanti-
tative because human intentions and perceptions are not numer-
ical. It is worth bearing in mind that, just as in peacetime
deterrence, warfighting is in essence a violent attempt to in-
fluence the opinions and desires of the opposing decision mak-
ers. Destroying a target is a senseless act unless it is a

plausible element in a sequence of acts designed to make the
enemy bend to our will.

We see three primary methods through which the heavy
bomber in particular can affect the psychology of the enemy.
They are:

- Omnipresence and destructive potential
- Destruction of military morale
- Destruction of military capability

One method is primarily a peacetime, deterrent method; the
other two are exercised during war or peacetime contingency.
We will discuss each in turn.

### Omnipresence and Destructive Potential

The range, payload, and historical use of the heavy
bomber translate directly into disproportionate concern with
the bomber's destructive capability. Although an A-6E In-
truder can carry half the payload of a B-52 (a not-inconsider-
able payload of thirty 500-pound bombs), two Intruders do not
have the psychic weight of a B-52. Gotha raids in World War
I, the Nazi bombing of Guernica, and the bombing of England
early in World War II foreshadowed the chaos created by heavy
bombers later in the war, and led those like Lord Cherwell to
conclude (in his famous "de-housing memo" of March 1942) bomb-
ing was uniquely effective: "There seems little doubt that
this would break the spirit of the people."[71]

Cherwell's RAF did not break the German spirit, and the American effort in the Pacific probably failed to break the Japanese spirit in Cherwell's sense. To reiterate, bombing in both theaters resulted in unprecedented death and devastation, on the order of 593,000 German and 390,000 Japanese civilian deaths.[72] B-29s dropping the atomic weapons on Japan added to the aura by multiplying the demonstrated violence of the aircraft many times over. Now, forty-nine years later, there is great doubt that bombing can "break the spirit of the people," but no doubt whatsoever that people universally, deeply, and consciously associate the bomber with destruction on a mass scale.

The bomber's other peacetime psychological quality--omnipresence--was not demonstrated conclusively until January 1957, when three Strategic Air Command B-52s made a non-stop flight around the world.[73] B-52 operation from Guam during raids into North Vietnam accentuates the capability to operate out of reach of an adversary, and to do so in mass.

Thus, the deployment--or alerting--of a squadron of bombers is qualitatively different from the deployment of a squadron of even the most capable attack aircraft. Somewhat like the commitment of troops on the ground, which signals serious U.S. commitment to the area of interest, threatened use of heavy bombers has had an impact in several crisis situations because of the bomber's status as the "big gun" of aerial warfare. Before they are employed, the element of

doubt over whether bombers are armed with nuclear weapons adds to their conventional deterrent value. In the Lebanon crisis of July 1958, for example, the U.S. visibly prepared over 1,100 bombers for immediate use as a threat to forestall Soviet intervention. Shortly thereafter, bombers were again exercised in the Quemoy-Matsu action, in support of U.S. naval and air actions. In the Cuban missile crisis, not only were B-52s on airborne alert, but B-47s were poised to strike targets in Cuba to exert indirect pressure on the USSR.[74]

One week after fighting in the Persian Gulf began, a *New York Times* article dedicated to the B-52 alone emphasized, not the precision and military capability of the aircraft, but its emotional consequence: "Even with half their old bomb capacity, the surviving B-52's [sic] deliver the biggest and perhaps the most terrifying wallop in the American air arsenal.[75] *Terrifying* is an adjective that is seldom applied to even the most formidable fighter-bomber. That the bomber's terrifying results and long range should be so well fixed in the public mind argues that it is certainly a "big stick" in an operational commander's crisis management arsenal. Are we arguing that bombers will let a CINC head off a conflict merely by their threatened use? The answer is clearly no--rather, it is apparent the bomber is a clearly visible and militarily powerful tool in the stages leading to war. It unequivocally indicates willingness to consider massive use of force. Should

it fail to deter, it is highly capable of prosecuting the next area of psychological impact: the enemy's forces themselves.

### Destruction of Military Morale

In November of 1942 Field Marshall Erwin Rommel observed in a letter to his wife:

> Following on their non-stop night attacks, the R.A.F. sent over formations of 18 to 20 bombers at hourly intervals throughout the day, which not only caused considerable casualties but also began to produce serious signs of fatigue and a sense of inferiority among our troops. . .Again and again British bomber formations flew up and tipped their death-dealing loads on my troops. . ."[76]

His troops' experience at the mercy of British *medium* bombers would be repeated on a much larger scale in the Cobra operations supporting Overlord in July 1944. During this operation, as many as 1600 heavy bomber sorties a day struck targets in close proximity to Allied ground troops to assist the breakout operation near Saint-Lô. Richard Hallion notes that "By any standard, the Cobra bombing had an extraordinary [demoralizing] effect on the German defenders. . .the Cobra bombing constituted the best example in the European Theater of 'carpet bombing'."[77] USAF B-29s operating in Korea repeated the Cobra attacks but did so with greater electronic sophistication, enabling night attacks as close as 1000 feet to friendly forces. The 2nd Infantry commander, Major General Clark L. Ruffner, advised the Far East Air Forces commander:

> Tremendous damage inflicted by your bombs has reduced considerable pressure by the enemy against my

command.     Precision of bombardiers in destroying
morale of entire enemy units assembling for attack
within 400 yards of front lines utterly amazing.
Captured U.S. soldier escaped during your attack on
Sinchon near midnight and reported greater part of
enemy battalion moving in to attack Ninth Infantry
was destroyed and remaining enemy fled in panic-
stricken confusion.[78]

This lesson was repeated in Vietnam, where Rolling Thun-

der--formally the code name for *tactical* air operations be-

tween 1965 and 1968--became a descriptive term for raids con-

ducted by *heavy bombers* as part of Arc Light.  The waves of

deafening sound, vibration, blast, and shrapnel from a train

of 108 500-pound bombs embodied rolling thunder to the unlucky

Viet Cong and North Vietnamese caught in the impact box, and

captured enemy soldiers consistently portrayed a picture of

"terror, panic, demoralization, and confusion" during and af-

ter the raids.  As a result, "American ground commanders, who

selected the targets as a means to disrupt the enemy, consid-

ered B-52s the most effective weapon system used in South

Vietnam."[79]  General Alexander Haig, then a battalion comman-

der, commented recently that "I've used B-52s for close sup-

port, a thousand meters in front of my battalion, with awesome

effect. . .being dug in doesn't matter."[80]  Certainly, many

tons of bombs were dropped with no effect other than defolia-

tion of jungle.  Yet ground commanders from the lowest levels

to the Commander of U.S. Military Assistance Command, Vietnam

valued the contribution of the heavies.

The Second World War and Korea were examples of success-

ful *military* morale bombing, in most cases, despite technical

and command/control obstacles to coordinated air-land action.
In Vietnam, because of the nature of the enemy and his ability
to hide in the environment, as well as varying constraints on
air attacks, coordinated air-ground action remained difficult.
Since Vietnam, the Army's AirLand Battle doctrine has empha-
sized agility, synchronization, initiative, and depth, while
USAF **Basic Aerospace Doctrine** has done the same with slightly
greater emphasis on central direction of air assets.[21] Heavy
bombers have always been more cumbersome to use the nearer
friendly troops their use was contemplated--but advances such
as the Global Positioning System; improved command, control,
communications, and intelligence; computer database-driven
mission planning; and more accurate, adaptable aircraft navi-
gation and delivery systems make true synchronization of ef-
fort a possibility instead of a pipe dream.

For all its powerful impact on the morale of fighting
forces, aerial bombardment of those forces is unlikely to
achieve the political aim of imposing a settlement of any con-
sequence without coordinated ground forces to exploit (or
threaten exploitation of) the demoralization and destruction
it causes. Demoralized, intact troops eventually regain their
morale to fight again, although perhaps with decreased effec-
tiveness. To achieve the desired political result, it is nor-
mally necessary to affect the "morale" of the leaders of those
troops--the commanders and political masters who direct the

troops to fight.  It is in this next task that the bomber
makes its most significant contribution.

### Destruction of Military Capability

As Fred Iklé has written, "the outcome of a single bat-
tle--whether or not it is the last--can bring about the termi-
nation of the war in either of two ways."  The first way is
the traditional one, in which the victor's forces overwhelm
the enemy's last forces, who have persisted in fighting to the
bitter end.  The other is the battle which provides a "trigger
for a complete reevaluation of the military prospects."[82]  Air
power is seldom capable of winning the war alone in the tradi-
tional way--because it is both politically and mechanically
quite difficult to destroy a nation's entire military machine-
-but it is admirably suited for presenting enemy leadership
with opportunities to reassess their prospects and aims.
Through its unique ability to attack, with massive firepower,
military and militarily significant industrial and economic
targets, the heavy bomber can shock enemy leaders into reeval-
uating their war aims and possibilities.  Failing that, con-
tinued bombing can eventually deprive an enemy of the war ma-
teriel necessary to continue his effort (although with possi-
ble negative consequences as described above).  Such bombing
is expensive in terms of ordnance and time, even with the mod-
ern bomber.

As opposed to attacks on enemy military forces to demoralize those forces or assist in ground action, the enemy feels the psychological impact of heavy bombardment when essential elements of his military capability are either destroyed or threatened with imminent ruin.

The North Vietnamese, during the course of Linebacker II, finally lost the capability to defend either their military forces or their capital city. As opposed to heavy bombing on a local basis, which affects troop morale, Linebacker II culminated nine months of bombing that physically affected the troops, deprived many of them of effective means of resistance to air attack, and thus psychologically affected those leaders who relied on those troops to attain political ends. As the commander of North Vietnamese forces in South Vietnam put it,

> "Our cadres and men were fatigued, we had not had time to make up for our losses, all units were in disarray, there was a lack of manpower, and there were shortages of food and ammunition. . . . The troops were no longer capable of fighting."[83]

After eleven days of bombing, the North Vietnamese felt the pressure of exposure: exposure to continued affliction, the possibility of expansion of the punishment, and a United States apparently willing to keep it up. Facing the alternatives of continued punishment or negotiation from a slightly weaker position, the pressure of the bombing led the North Vietnamese back to the Paris talks. Regardless of the eventual outcome of U.S. involvement in Vietnam, Linebacker II was an example of successful coercion by heavy bombers.

# CHAPTER VI

## CONCLUSIONS

### Commander's Considerations

We have attempted to show that the modern bomber is a useful weapon for conducting conventional war in a theater of operations. It is versatile because of long range and large payload; it is likely to be increasingly usable because of relaxing superpower tensions, and while the number of bombers is decreasing, their flexibility, penetration ability, and lethality are improving. Fiscal constraints will make them a larger fraction of U.S. aerial striking power, and regional threats to U.S. national interests are likely to present opportunities to use the heavy bomber. In developing a concept of operations, the dominant consideration for heavy bomber employment is to maximize the potential psychological leverage it can exert on the enemy, while minimizing adverse psychological consequences to the U.S. or its allies. The bomber's mere presence in an air campaign may fuel the fires of the enemy's propaganda machine, and may elicit negative responses in domestic and international public opinion. It is important to identify the enemy's "center of gravity" and to attack it, evaluating those attacks with the measure of effectiveness discussed above: the impact on the enemy's behavior or activities.

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## Recommendations

Based on the evidence, the operational commander can best capitalize on and magnify the heavy bomber's unique firepower by employing it against enemy military vulnerabilities rather than cultural or indefinable morale targets. Such targeting has the greatest psychological impact where it counts the most: on those using military means to continue politics--the enemy leadership.

Morale bombing of civilians is counterproductive, almost always illegal, very difficult if executed indirectly, and should not be done under any circumstances. All of the possible instances of morale bombing discussed here occurred near the end of each conflict and were incremental in nature, either due to political controls or operational limitations. In Vietnam, many felt that pauses in the bombing campaigns gave the civilian populations time to recover and adjust.[44] The Vietnamese did not share "lessons learned" with us, so we are forced to conjecture. On balance, it seems that bombing civilian morale is an inefficient use of military resources, and largely ineffective--people are extremely adaptive and resilient.

Bombing purely cultural targets is a self-defeating strategy and should never be planned. The very nature of cultural objectives places them under the protection of international law. When the enemy uses cultural sites for military

purposes and removes the aegis of law from them, destroying such targets may create negative emotional responses which negate any military advantage obtained and must be weighed against the potential gain. Similarly, decapitating the enemy leadership may create more problems than it solves due to its practical difficulty, potential for chaos, and public opprobium should such an objective be known.

To minimize the effect of bombing on American and world opinion, the commander should publicly acknowledge the fact that no matter how accurately the bomber strikes its targets, civilian casualties are likely to occur. Even with "smart" weapons, the inevitable product of high-explosive is an explosion. Furthermore, some weapons are going to miss their intended targets due to malfunction or crew error.[85] The commander should anticipate such mistakes, admit them when they occur, and act strenuously to avoid them.

The commander and policymakers should wage an aggressive counterpropaganda campaign. Public statements should affirm the counterforce nature of bomber targeting and employment. Commanders should present as much hard evidence as possible, without jeopardizing operational security, that bomber strikes are not flattening civilian areas. Silence or halfhearted disclosure on such matters allows a hostile media the freedom make the argument one-sided; the commander should present his case, too.

The commander must guard against impatience with air power, both on the part of his staff and the public. The mystery and sophistication of the bomber subtly create an expectation of rapid success that is not justified by the historical record. Sustained, concentrated bombing of well-chosen targets is a necessity for successful use of the bomber. The commander must avoid and assuage impatience, and realize that air power's psychological effects may be mighty, but they are not omnipotent.

### Prospective--The Air War for Kuwait

As of this writing, the air campaign over Iraq and Kuwait has been underway for three weeks, and Saddam Hussein has not yet capitulated. There is evidence of impatience in some of the media commentary on the Desert Storm air campaign, and there are a tremendous number of issues again being tested in the crucible of air combat. If three weeks of artillery bombardment or naval gunfire had failed to force an Iraqi withdrawal from Kuwait, no one would claim we had seen a categorical failure of cannons or battleships; yet some analysts are claiming that the greatest concerted aerial bombardment since World War II has "failed." We are fully aware that our analysis, above, is being tested--but it is being proven, as well, by the existence of the air power debate and the fascination with which the world has watched the bomber once more take to the air in anger.

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